

UNDERWATER BRIDGE INSPECTION REPORT

STRUCTURE NO. L4675

TWP NO. 71

OVER

WEISEL CREEK

DISTRICT 6 - FILLMORE COUNTY



PREPARED FOR THE
MINNESOTA DEPARTMENT OF TRANSPORTATION

BY
COLLINS ENGINEERS, INC.

JOB NO. 3512 (CEI 146)

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

REPORT SUMMARY:

The substructure unit inspected at Bridge No. L4675, the East Abutment, was found to be in satisfactory condition. The masonry exhibited moderate deterioration of the mortar joints along the waterline. A minor localized scour depression was observed at the upstream corner of the East Abutment, and since the previous inspection, the channel bottom has degraded by up to 2 feet along the abutment.

INSPECTION FINDINGS:

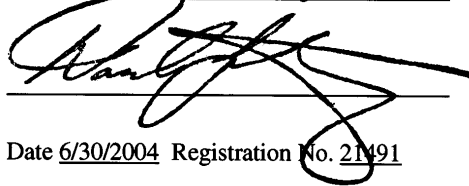
- (A) The abutment was in satisfactory condition with moderate deterioration of the masonry and a loss of mortar at the joints from 6 inches above to 1 foot below the waterline with typical penetrations of 4 inches and a maximum penetration of 12 inches.
- (B) A minor scour depression, 2.5 feet deep with a radius of 5 feet, was observed at the upstream corner of the East Abutment. The bottom of the depression was lined with riprap.
- (C) A 1.5-foot-wide ledge was exposed along the entire breastwall with up to 2 feet of vertical face exposure and with no undermining detected.

RECOMMENDATIONS:

- (A) The masonry joints of both abutments should be repointed during routine maintenance of the bridge.
- (B) Since insufficient bridge foundation information was available, monitor the East Abutment for any undermining during future inspections.
- (C) Reinspect the submerged substructure units at the normal maximum recommended (NBIS) interval of five (5) years.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

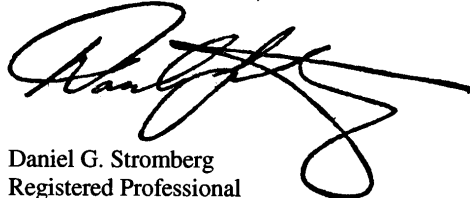
Daniel G. Stromberg



Date 6/30/2004 Registration No. 21491

Respectfully submitted,

COLLINS ENGINEERS, INC.



Daniel G. Stromberg
Registered Professional
Engineer, State of Minnesota

MINNESOTA DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION

1. BRIDGE DATA

Bridge Number: L4675

Feature Crossed: Weisel Creek

Feature Carried: TWP No. 71

Location: District 6 - Fillmore County

Bridge Description: The superstructure consists of a single span, multiple steel beam bridge. The superstructure is supported by two masonry abutments. No foundation information was available.

2. INSPECTION DATA

Professional Engineer/Team Leader: Shirley M. Walker, P.E.

Dive Team: Michelle D. Koerbel, Clayton G. Brookins

Date: October 3, 2002

Weather Conditions: Cloudy, " 45EF

Underwater Visibility: " 2 Feet

Waterway Velocity: Negligible/None

3. SUBSTRUCTURE INSPECTION DATA

Substructure Inspected: East Abutment.

General Shape: The abutments each consist of a masonry breast wall, flanked by wingwalls flared at an angle of approximately 45 degrees. The wingwalls taper from full height at the abutment to half height at the ends.

Maximum Water Depth at Substructure Inspected: Approximately 8.6 Feet.

4. WATERLINE DATUM

Water Level Reference: The bottom of the northernmost steel beam at the West Abutment.

Water Surface: The waterline was approximately 12.2 feet below reference.
Assumed Waterline Elevation = 87.8.

5. NBIS CODING INFORMATION (Minnesota specific codes are used for 92B and 113)

Item 60: Substructure: Code 6

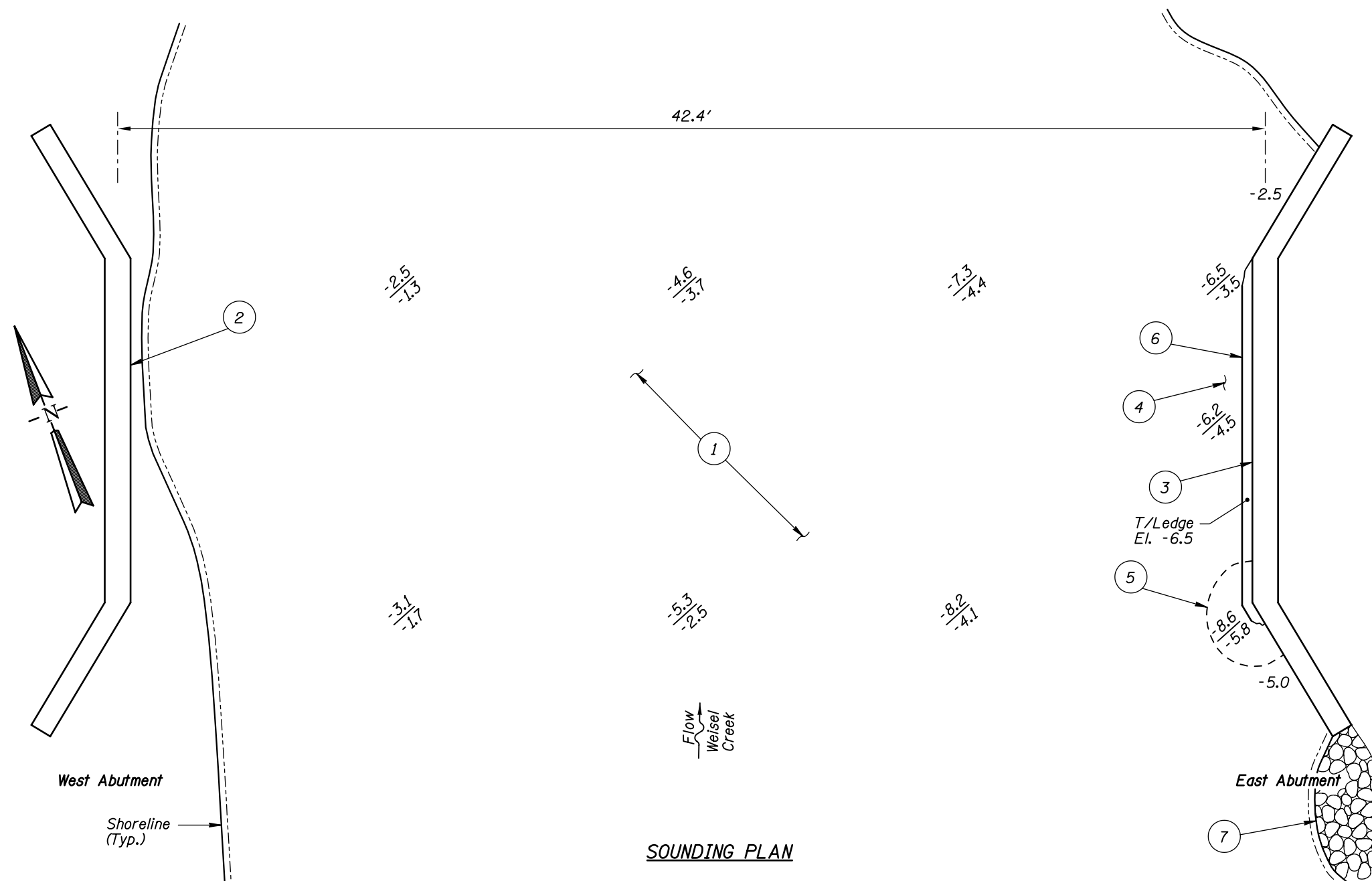
Item 61: Channel and Channel Protection: Code 6

Item 92B: Underwater Inspection: Code B/10/02

Item 113: Scour Critical Bridges: Code G/92

Bridge is scour critical because abutment or pier foundation is rated as unstable due to observed scour at bridge site.

_____ Yes X No



GENERAL NOTES:

1. The East Abutment was inspected underwater.
2. At the time of inspection on October 3, 2002, the waterline was located approximately 12.2 feet below the bottom of steel on the northernmost beam at the West Abutment. Since insufficient bridge elevation information was available a reference elevation of 100.0 was assumed. Based on the assumed reference the waterline elevation was 87.8.
3. Soundings indicate the water depth at the time of inspection and are measured in feet.
4. Soundings were taken parallel to the bridge at 1/4 point intervals between the substructure units.

INSPECTION NOTES:

- 1 The channel bottom material consisted of a soft silt material with 1 foot of maximum probe rod penetration.
- 2 The mortar in the joints was deteriorated along the wall from 6 inches above to the groundline with 3 inch typical penetrations, and 8 inch maximum penetrations near the groundline.
- 3 The mortar in the joints was deteriorated along the abutment wall from 6 inches above the waterline to 1 foot below the waterline with 4 inch typical penetrations, and 12 inch maximum penetrations near the waterline.
- 4 Riprap was observed along the entire face of the abutment, extending 3 feet into the channel.
- 5 A minor scour depression was observed, 2.5 feet deep with a radius of 5 feet. Riprap lined the bottom of the depression.
- 6 A 1.5-foot-wide ledge was exposed along the breastwall with up to 2 feet of vertical exposure and with no undermining detected.
- 7 The embankment protection was undermined 4 feet below the waterline.

Legend

-2.0 Sounding Depth from Waterline (10/3/02)
-5.2 Sounding Depth from Waterline (9/29/97)

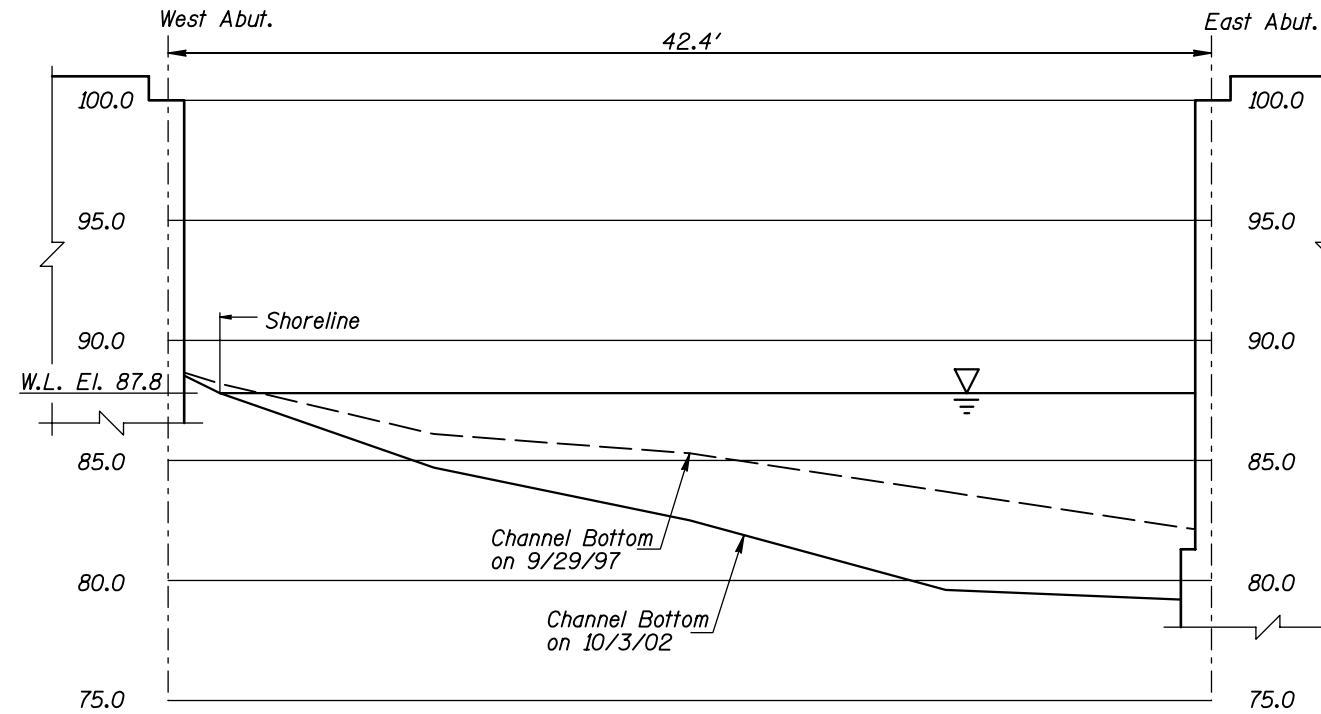
 Riprap

MINNESOTA DEPARTMENT OF TRANSPORTATION UNDERWATER BRIDGE INSPECTION

STRUCTURE NO. L4675
OVER WEISEL CREEK
DISTRICT 6, FILLMORE COUNTY

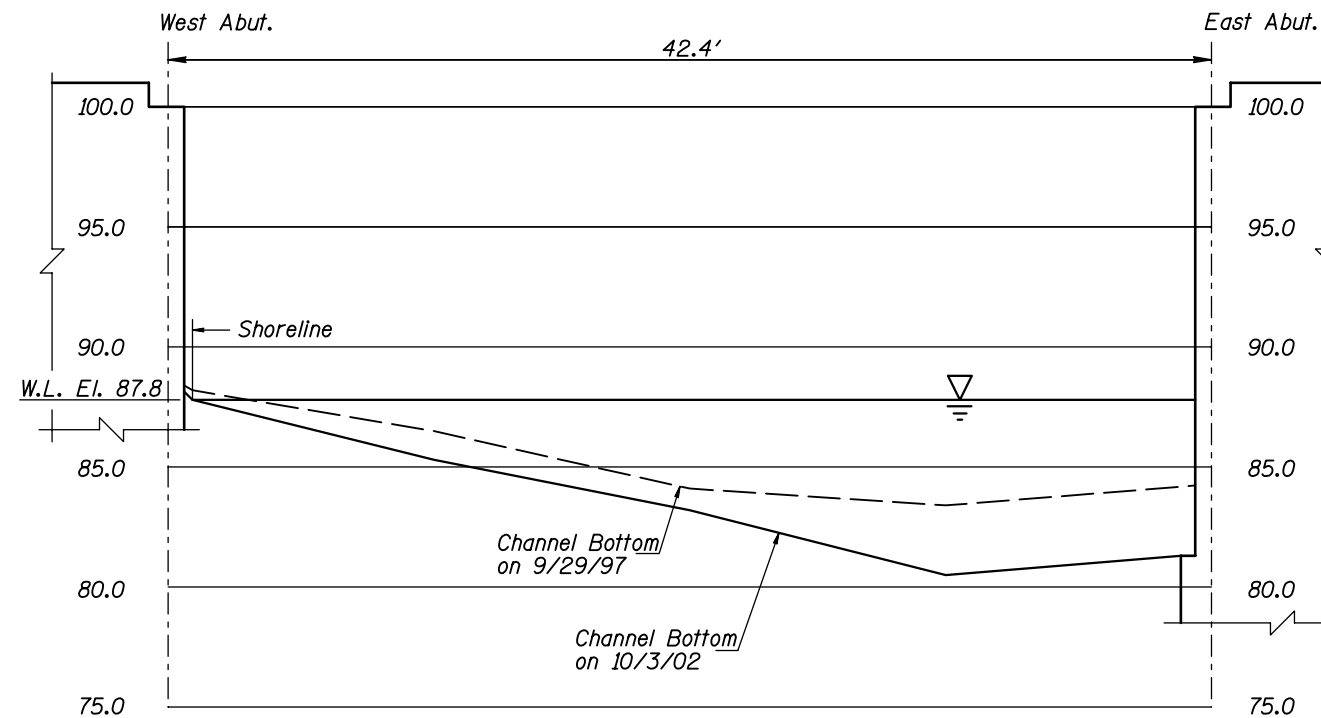
INSPECTION AND SOUNDING PLAN

Drawn By: PRH		300 W. WASHINGTON, STE. 600 CHICAGO, ILLINOIS 60606 (312) 704-9300	Date: OCT. 2002
Checked By: MDK			Scale: NTS
Code: 35I20I46			Figure No.: 1



UPSTREAM FASCIA PROFILE

Vertical Scale: 1/8" = 1'-0"



DOWNSTREAM FASCIA PROFILE

Vertical Scale: 1/8" = 1'-0"

Note:

Refer to Figure 1 for General Notes.

**MINNESOTA
DEPARTMENT OF TRANSPORTATION
UNDERWATER BRIDGE INSPECTION**

STRUCTURE NO. L4675
OVER WEISEL CREEK
DISTRICT 6, FILLMORE COUNTY
**UPSTREAM AND DOWNSTREAM
FASCIA PROFILES**

Drawn By: PRH

Checked By: MDK

Code: 35I20I46



COLLINS ENGINEERS, INC.
300 W. WASHINGTON, STE. 600
CHICAGO, ILLINOIS 60606
(312) 704-9300

Date: OCT. 2002

Scale: NTS (U.O.N.)

Figure No.: 2



Photograph 1. Overall View of the Structure, Looking South.



Photograph 2. View of East Abutment, Looking South.



Photograph 3. View of West Abutment, Looking North.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES
DAILY DIVING REPORT

INSPECTORS: Collins Engineers, Inc. DATE: October 3, 2002
ON-SITE TEAM LEADER: Shirley M. Walker, P.E.
BRIDGE NO: L4675 WEATHER: Cloudy, " 45EF
WATERWAY CROSSED: Weisel Creek
DIVING OPERATION: X SCUBA SURFACE SUPPLIED AIR
OTHER

PERSONNEL: Michelle D. Koerbel, Clayton G. Brookins
EQUIPMENT: Scuba, Scraper, Sounding Pole, Camera, Probe Rod, Lead Line
TIME IN WATER: 12:25 p.m.
TIME OUT OF WATER: 12:55 p.m.
WATERWAY DATA: VELOCITY Negligible/None
VISIBILITY " 2 Feet
DEPTH 8.6 Feet

ELEMENTS INSPECTED: East Abutment

REMARKS: The masonry of the abutment was in satisfactory condition with moderate deterioration of the stones and loss of mortar at the joints from 6 inches above to 1 foot below the waterline. A 1.5-foot-wide ledge was exposed along the entire breastwall, with up to 2 feet of vertical face exposure and with no undermining detected, and a minor scour depression was observed at the south end of the East Abutment related to the maximum ledge exposure. The channel bottom has degraded along the East Abutment by up to 2 feet since the previous inspection.

FURTHER ACTION NEEDED: X YES NO

The masonry joints of both abutments should be repointed during routine maintenance of the bridge.

Since insufficient bridge foundation information was available, monitor the East Abutment for undermining during future inspections.

Reinspect the submerged substructure units at the normal maximum recommended (NIBIS) interval of five (5) years.

MINNESOTA DEPARTMENT OF TRANSPORTATION
OFFICE OF BRIDGES AND STRUCTURES

UNDERWATER INSPECTION CONDITION RATING FORM

BRIDGE NO. L4675
INSPECTORS Collins Engineers, Inc.
ON-SITE TEAM LEADER Shirley M. Walker, P.E.
WATERWAY CROSSED The Weisel Creek

INSPECTION DATE October 3, 2002
NOTE: USE ALL APPLICABLE CONDITION
DEFINITIONS AS DEFINED IN THE MINNESOTA
RECORDING AND CODING GUIDE INCLUDING
GENERAL, SUBSTRUCTURE, CHANNEL AND
PROTECTION, AND CULVERTS AND WALL
DEFINITIONS TO COMPLETE THIS FORM.

CONDITION RATING

UNIT REFERENCE NO.	UNIT DESCRIPTION	MAXIMUM DEPTH OF WATER	SUBSTRUCTURE						CHANNEL					GENERAL					
			PILING	COLUMNS, SHAFTS, OR FACES*	FOOTINGS	DISPLACEMENT	OTHER	OVERALL SUBSTRUCTURE CONDITION CODE*	SCOUR	EMBANKMENT EROSION	EMBANKMENT PROTECTION	OTHER (DRIFT/DEBRIS)	OVERALL CHANNEL & PROTECTION CONDITION	CONCRETE	STEEL	TIMBER	LOSS OF SECTION (MORTAR)	PREVIOUS REPAIR OR MAINTENANCE	OTHER (MASONRY)
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	East Abutment	8.6'	N	6	N	9	N	6	6	7	7	N	6	N	N	N	7	N	6

*UNDERWATER PORTION ONLY

REMARKS: The masonry of the abutment was in satisfactory condition with moderate deterioration of the stones and loss of mortar at the joints from 6 inches above to 1 foot below the waterline. A 1.5-foot-wide ledge was exposed along the entire breastwall, with up to 2 feet of vertical face exposure and with no undermining detected, and a minor scour depression was observed at the south end of the East Abutment related to the maximum ledge exposure. The channel bottom has degraded along the East Abutment by up to 2 feet since the previous inspection.

NOTES: ATTACH SKETCHES AS NEEDED, IDENTIFY REMARK BY REFERRING TO UNIT REFERENCE NO. AND REMARK NO.
USE GENERAL SECTION TO IDENTIFY OVERALL PRESENCE OF SPALLS, CRACKS, CORROSION, ETC.